

USSR

UDC 669.15.018.295:538.5

(2)

GRUZIN, P. L., RODIONOV, YU. L., LI, YU. A., YEDNERAL, A. F., ZHUKOV, O. P., and PERKAS, M. D., Institute of Metal Science and Physics of Metals, Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"Redistribution of Alloying Elements Upon Recovery in Martensite-Aging Alloys Fe-Ni-Mo and Fe-Ni-Co-Mo"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 2, 1973, pp 423-427

Abstract: In order to determine the reasons for differences in the nature of change of recovery of the alloys N16M5 and N16K15M5 at various temperatures, the phenomenon was studied by nuclear γ -resonance (NGR). The composition of the alloys is as follows: N16M5--16 wt.% Ni, 5Mo; N16K15M5--16.4% Ni, 5.25% Mo, 15.1% Co, remainder Fe in both cases. Low temperature aging was at 420° C for 8-100 hours; the recovery temperature was 100° C higher. It was found that cobalt has a significant influence on the processes of redistribution of alloy-element atoms during recovery. The degree of recovery in alloys with cobalt increases, apparently as a result of decomposition of metastable segregations at low temperatures.

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Transformation and Structure

USSR

UDC 669.15.018.295:539.25

YEDNERAL, A. F., ZHUKOV, O. P., PERKAS, M. D., Institute of Metal Science and Physics of Metals, Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"Structural Changes Upon Aging of Martensite of Iron-Nickel-Tungsten and Iron-Nickel-Cobalt-Tungsten Alloys"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 2, 1973, pp 339-346

Abstract: The alloys N17V10, N15K15V10 and N15K20V10 were studied by diffraction electron microscopy. The structure of the alloys in the aged state, the structure of hardening phases, and the distribution and form of their segregations were studied. The structure of the alloys was studied after aging at 520, 550 and 600°. Segregations rich in tungsten were found to be one of the products of decomposition of the solid solution of martensite Fe-Ni-W alloy. These segregations consist almost entirely of tungsten atoms and have a body-centered cubic lattice. At 440°, a hexagonal close-packed phase based on Ni_3W is also formed.

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YEDNERAL, A. F., et al., Fizika Metallov i Metallovedeniye, Vol 36, No 2, 1973, pp 339-346

At 500° and higher, there is also a stage of formation of tungsten segregations, but the phase separated is primarily an Fe₂W-based intermetallide. The segregations are formed heterogeneously on martensite crystal structural defects. The introduction of 15-20% Co causes the solid solution to stratify into microvolumes, some rich in iron and cobalt, others rich in tungsten and nickel. All of these decomposition products help to harden the alloy.

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UDC 669.15'24'25-192:669.017.3

YEDNERAL, A. F., ZHUKOV, O. P., KABLUKOVSKAYA, M. A., MOGUTNOV, B. M., and PERKAS, M. D., Institute of Metal Science and Physics of Metals; Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"Investigation of the Ordering Process in Iron-Nickel-Cobalt Alloys with Martensite Structure"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 4, Oct 73, pp 727-734

Abstract: In the martensite of Fe-Ni-Co ternary alloys an exothermal process accompanied by increased strength and modulus of elasticity takes place at 300-500°C. The process depends on the formation of a short-range order. In the alloy with high Ni and Co contents, zones with a long-range order of the FeCo-type were disclosed by the electron-microscopy method. The maximum change in properties on isochronal heating for 1 hr is observed at 450-500°C. The plastic deformation of specimens processed for maximum hardness leads to a loss in strength. A change of Co and Ni contents has an influence on hardening in the heating of Fe-Ni-Co alloys. In the Fe+15%Co and Fe+20%Co binary alloys hardening on heating was not observed. The increase in hardening of Fe-Ni-Mo

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YEDNERAL, A. F., et al., Fizika Metallov i Metallovedeniye, Vol 36, No 4,
Oct 73, pp 727-734

alloys in aging and when introducing Co is explained by the formation of a short-range order of Fe-Co-type and the decreased solubility of Mo in the α -phase. The latter makes the principal contribution to hardening. Eight difures, two tables, 15 bibliographic references.

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USSR

UDC 669.15.018.295:539.52

YEDNERAL, A. F., ZHUKOV, O. P., and PERKAS, M. D., Institute of Physical Metallurgy and Metal Physics and the Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"Effect of Cobalt on the Strength of Martensite in Fe-Ni-Co-W Alloys During Aging"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 3, 1973, pp 569-573

Abstract: Changes in hardness, electrical resistance, and mechanical properties, occurring during aging of martensite in alloys with Fe-15% Ni-10% W-(0-20)% Co, were studied. It was found that cobalt in Fe-Ni-Co-W alloys, the same as in Fe-Ni-Co-Mo alloys, promotes effective martensite strengthening during aging. The addition of cobalt to Fe-Ni-W martensite leads to a large amount of tungsten leaving the solid solution during aging and to an increased rate of this process. Of the 10 alloys tested, alloy N15K20V10 had the highest tensile strength (273 kg/mm^2) with good ductility after aging for four hours at 475°C . When the tungsten content is increased to around 18%, a tensile strength of 300 kg/mm^2 can be achieved but ductility is very low, which is apparently caused by precipitation of the μ -phase from the austenite. Aging should be done after forging because the austenite grains are smaller then after high-temperature hardening. 2 figures, 2 tables, 5 bibliographic references. 1/1

Steels

USSR

UDC 669.14.018.2

YEDNERAL, A. F., ~~ZHUKOV, O. P.~~, and PERKAS, M. D., Central Scientific Research Institute of Ferrous Metallurgy

"Martensitic-Aging Steels With Strength Higher Than 200 kg/mm²"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 4, 1971, pp 9-14

Abstract: Investigation results are presented on the aging of martensite of three-component and multi-component alloys, all of them containing $< 0.01\% \text{ C}$, $< 0.004\% \text{ S}$, and $< 0.002\% \text{ P}$, and melted down in a vacuum-induction furnace on carbonyl iron of high purity. The investigation results are discussed by reference to tabulated data and diagrams showing the methods of thermal treatment and aging, the effect of the aging temperature and of Co on the change of mechanical properties, and the sequence of processes by aging martensite in Fe - Ni - Mo alloys alloyed with Co. It was found that martensitic-aging steels with a

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YEDNERAL, A. F., et al., Metallovedeniya i Termicheskaya Obrabotka Metallov, No 4, 1971, pp 9-14

tensile strength of $\sigma = 240 - 250 \text{ kg/mm}^2$ possess satisfactory plasticity and ductility. In martensitic-aging steels melted down on pure burden materials, the contents of Ti and Al can be increased up to 1.8% and 1.0 %, respectively, and high strength ($\sigma > 220 - 230 \text{ kg/mm}^2$) and satisfactory plasticity will be obtained after aging. Seven illustr., five tables, seventeen bibli. refs.

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USSR

ZHUKOV, O. V., DAVYDOV, V. P.

"System for Generation of Programs for Conversion of Information Files"

Mat. Obespecheniye ASU [Automatic Control System Software -- Collection of Works], Moscow, 1972, pp 154-159 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V652, by L. Khizder).

Translation: The following are suggested as primary functions to be performed by file conversion programs: 1) rearrangement and formation of groups of output files from groups of input files; 2) coding and decoding using a dictionary; 3) selection of quantities and records on the basis of fixed conditions; 4) conversion of a file from one form of representation to another. The role of file conversion procedures in formation and servicing of the information base of a data processing system is particularly noted. Brief information is presented on a system for generation of programs for conversion of information files developed and used at the main computer center of the State Supply Commission, USSR.

USSR

UDC 669.083.4

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REZNYAKOV, A. A., ISAKOVA, R. A., YESYUTIN, V. S., NESTEROV, V. N., NECHIPORENKO, G. I., MOROZOV, I. F., ZHUKOV, P. I., ZAVADSKAYA, N. F., and KALININ, V. Ya.

"Increasing the Effectiveness of Vacuum Refining of Selenium"

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Moscow, Tsvetnyye Metally, No 1, Jan 70, pp 54-57

Abstract: Data were obtained which confirm the results of previously conducted laboratory investigations regarding the possibility of producing high-quality commercial Se in a single operation. At 450° and a vacuum of 0.6 mm Hg, the output of the apparatus was 2 t/m² per day. The yield of high-quality Se was 80%; highly volatile fractions and mother liquor accounted for 15 and 5%, respectively. During prolonged operation of the apparatus the disks overgrown with shelliness, which formed as the result of the precipitation of metal selenides suspended in Se. An investigation of the filtration of fusion and vapors of Se showed that it is possible to produce high-quality commercial Se in a single operation. The process has been introduced into Se production.

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USSR

UDC 621.316.56

RUBINCHIK, A. M., ZHIKOV, P. V., GORDEYEVA, N. Ye., KOSTYUROVA, T. A.

"Investigation of the AP-1 Automatic Precision Switch"

Tenzometrich. Pribory dlya Issled. Stroit. Konstruktsiy [Tensometric Devices for Investigation of Construction Structures -- Collection of Works], Moscow, Stroyizdat Press, 1971, pp 149-161 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 11, 1971, Abstract No 11 A18 by N. S.).

Translation: This article presents a study of the AP-1 automatic precision switch, designed for successive connection of the arms of half bridges consisting of tensometric sensors to a measuring device. The AP-1 consists of a lamellar drum, current-tapping rings, and contact brushes, the movement of which is controlled by an electromagnetic stepping mechanism. An estimate is given of the random errors in the measuring device-switch system indicated by tests performed on a special test stand. The transient resistances and efficiencies of the plate-contact pairs and the resistances between plates are determined. The results of investigations are evaluated. 9 Figures.

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USSR

UDC 620.171.2

SKLIYAROV, N. M., KONONCHUK, N. I., ZHUKOV, S. L., ZHUKOV, N. D., VASIL'EV, B. N., AKIMOV, L. M., LAPITSKIY, YU. A., BELTAYEV, M. S., KRIVONOGOV, G. S., ISHCHENKO, I. I., POGREBNYAK, A. D., and KUFAYEV, V. N. (Moscow, Kiev)

"Estimating the Heat Resistance of Heat-Resistant Alloys Under Actual Operating Conditions"

Kiev, Problemy prochnosti, No 1, 1971, pp 13-21

Abstract: Problems concerned with estimating the endurance of heat-resistant materials under unstable loading conditions are analyzed. A method is suggested for producing and using "secondary" endurance characteristics, increasing the accuracy of estimation and calculation of guaranteed durability under operating conditions and forced equivalent loading modes. These secondary characteristics represent the dependence of the durability of materials on combinations of preceding programmed and subsequent stationary loads in various proportions. The formula of linear addition of damage applies. The secondary characteristics are produced by accelerated testing over limited test periods with extrapolation to the area of increased durability.

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USSR

UDC 669.71.018.9

AL'TMAN, M. B., BOSOV, A. M., and ZHUKOV, V. D.

"On the Relationship of Hydrogen With Oxides in Aluminum Alloys"

Tekhnol. legkikh splavov. Nauchno-tekhn. byul. VILSa (Technology of Light Alloys. Scientific and Technical Bulletin of All-Union Institute of Light Alloys), 1970, No 3, pp 12-15 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 G237 by G. SVODTSEVA)

Translation: In order to ascertain the relationship between hydrogen and oxides, experiments were conducted relating to the saturation of AMg6 alloy with tritium from water vapor. After vacuum evaporation of a melt oxides are so distributed that the lower layers of the melt are enriched therewith to a greater degree and the upper layers to a lesser degree, while the center portion contains the least quantity thereof. Hydrogen can segregate not only in the upper but also in the lower layers. The amount of hydrogen in AMg6 alloy in the dissolved state is 20-30% of total hydrogen content. The remainder of the hydrogen occurs in the melt in the form of a gaseous "emulsion" consisting of conglomerates of oxides and a bubble with a radius $\sim 3.1 \cdot 10^{-3}$ cm. Bibliography of four titles.

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Antibiotics

USSR

UDC 576.851.45.094.18:615.332(Streptomycinum)

KENIG, E. E., ZHUKOV, V. G., MALININA, Z. Ye., and SACEYEVA, O. F., Institute of Human Morphology, Academy of Medical Sciences USSR, Moscow

"Changes in the Ultrastructure of the P. pestis in Guinea Pig Organisms Under the Effect of Streptomycin"

Moscow, Antibiotiki, Vol 18, No 6, Jun 73, pp 546-549

Abstract: The purpose of the study was to investigate changes in the ultrastructure of P. pestis in animal organisms treated with streptomycin. Guinea pigs were injected with a virulent culture (strain 363/4) and treatment with streptomycin was begun on the second day after infection. Treated animals were killed 2-10 days after treatment was begun and were studied bacteriologically and with an electron microscope. It was found that plague bacilli in this case may be subject to intracellular bacteriolysis, with preservation of the cytoplasmic membrane. Involution was manifested. Polymorphism of the plague microbe was more marked in animals treated with streptomycin than in the control animals, with bacterial cells 0.5-1.0 microns in size predominating. Under the influence of streptomycin, plague microorganisms lose their shells and cytoplasmic membranes and granulative degradation and lysis occur.

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USSR

KENIG, E. E., et al., Antibiotiki, Vol 18, No 6, Jun 73, pp 546-549

One of the early ultrastructural manifestations of therapeutically caused pathomorphism of experimental plague in guinea pigs treated with streptomycin is an increase in the number of lysosomes in the cytoplasm of the macrophages and neutrophils.

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USSR

UDC 616.832.9-002.931.611.3-092.9

AVTSYN, A. P., BEREZINA, Ye. K., KENIG, E. E., DURSUNOVA, S. M., BELOVA, Ye. M., SHTEGEL'MAN, and ZHUKOV, V. G., Scientific Research Institute of Human Morphology, Academy of Medical Sciences USSR, and All-Union Scientific Research Institute of Antibiotics

"An Experimental Model of Leishmanial Meningoencephalitis"

Moscow, Antibiotiki, No 10, 1971, pp 885-888

Abstract: Intercerebral inoculation of mice with *Leishmania donovani*, strain T-1, obtained from dogs, and other strains obtained from reptiles resulted in the typical clinical picture of meningoencephalitis. The reaction to *Leishmania* and to the trauma was evident at the injection site in 14 days and 40 days later there were signs of inflammation of the meninges. The process became generalized in the central nervous system after 160 days. Lymphoid infiltrates appeared in the pia mater and small granulomas in the brain tissue proper. Within the lymphoid infiltrates and granulomas, *Leishmania* were observed. The granulomas consisted mainly of epithelioid cells. Actual penetration of *Leishmania* into nerve cells could not be conclusively demonstrated. The ease with which meningoencephalitis can be induced in mice with *Leishmania* makes these animals suitable for use in experimental chemotherapy.

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Acc. Nr.: AP0029322

Ref. Code: UR 0297

PRIMARY SOURCE: Antibiotiki, 1970, Vol 15, Nr 1, pp 56-59

COMPARATIVE EXPERIMENTAL STUDIES ON CEPORIN AND AMPICILLIN

S. M. Navashin, V. G. Zhukov

National Institute for Antibiotics, Moscow

Ceporin was studied experimentally in vitro and in vivo in comparison with ampicillin. Activity of the two antibiotics against 104 clinical strains of *E. coli* and *Pr. mirabilis* and their efficiency with respect to acute Coli sepsis of mice were determined.

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Acc. Nr:

A/0034408

Ref. Code: UR 0297

PRIMARY SOURCE: Antibiotiki, 1970, Vol 15, Nr 2, pp 120-123

COMPARATIVE EXPERIMENTAL STUDIES ON CEPORIN AND OXACILLIN

V. G. Zhukov, S. M. Navashin

National Institute for Antibiotics, Moscow

Seporin was studied experimentally in vitro and in vivo in comparison with oxacillin. Activity of the two antibiotics against 113 clinical staphylococcal strains and their efficiency with respect to acute staphylococcal sepsis in mice were determined.

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UDC 621.318 571

SAVUSHKIN, A. K., ZHUKOV, V. I., and MASLYUKOV, O. A.

"A Ferrite-Transistor Cell in the Control Circuits of Non-Contact Relays"

Tr. Mosk. in-ta inzh. zh.-d transp. (Proceedings of the Moscow Institute of Railroad Transportation Engineering), No 442, 1973, pp 139 - 145 (RZh Avtomatika Telemekhanika i Vychislitel'naya Tekhnika, No 11, Nov 73, abstract No 11 A410)

Translation: A non-contact relay with a ferrite-transistor cell in the control circuits is considered. In the proposed relay circuit the ability of the ferrite-transistor cell to give an output signal only when the magnetism of the core is rapidly reversed and to give no signal when the core magnetization is slowly reversed is used. Circuits are shown and the theoretical basis of the relationship between the V out of the cell and the length of the magnetization reversal pulse front is given. Four illustrations, two bibliographic citations.

Abstract by the authors.

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USSR

UDC 620.179.14

ZHUKOV, V. K., DOBNER, B. A.

"Analysis of Interference Stability of Two-Channel Vortex-Current Defectoscope"

Defektoskopiya, No 6, 1971, pp 95-99.

ABSTRACT: One method is presented of increasing the interference stability of vortex-current defectoscopes. The interference stability of a two-channel defectoscope is studied when noise is distributed normally. The analysis performed shows that with practically attainable dispersions of transmission factors of circuit elements, the interference stability of a defectoscope to this type of noise can be increased several times, more so, the greater the dispersion of the noise.

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ZHUKOV, V. M.

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1973 - 135 -

SEMINAR ON LATEST ACHIEVEMENTS IN HEAT EXCHANGERS
[Article by candidate of Technical Sciences V. M. Zhukov, Moscow, Vestnik Akademii Nauk SSSR, Russian, Vol. 41, No. 2, February 1973, pp 100-101]

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A seminar on "latest achievements in the area of heat exchange equipment", organized by the International Center of Heat and Mass Exchange, was held from 30 August to 6 September 1972 in Trogir (Yugoslavia). Representatives of 25 countries participated in it.

The themes of the seminar embraced a broad range of questions relating to the planning, designing and calculation of heat exchangers. E. Schlunder (East Germany) discussed the use of the achievements of the theory of heat exchange to solve engineering problems in the area of heat exchangers. He examined methods of calculating heat exchangers with mobile and fixed (USSR) presented a survey of methods of calculating heat exchangers during turbulent flow in tubes of single-phase heat transfer agents with variable physical properties.

There were discussions of questions connected with the calculation and with methods of optimization and numerical calculation of heat exchangers. J. Rohrer -- USA, T. Hoffmann -- England, K. Gardner -- USA, and S. Rohrer -- USA, T. Hoffmann -- England, E. A. Kallala (USSR) characterized methods of calculation and the results of an experimental investigation of nonstationary heat exchange during the flow of gas in channels. A. V. Zhukov and O. G. Malyukina (USSR) examined the task of heat exchange in a stabilized section of a horizontal pipe with an irregular distribution of the heat flow on the perimeter during laminar flow of the liquid.

J. Taborik (USA) reported on the state of investigation of the influence of contamination on heat exchange and hydrodynamics in heat exchangers. F. Smith (USA) presented results of thermal hydrodynamic tests of heat exchangers with flexible Teflon tubes of small diameter, which are very effectively used in the chemical industry in work with aggressive media.

A number of reports dealt with the study of heat exchange bundles of pipes. Reports presented the results of investigation of such effects as heat exchange in bundles of pipes with liquid flowing around them at large Reynolds numbers (A. A. Zhukovskiy -- USSR), the influence of roughness of the pipe surface on heat exchange and the flow around pipes in corridor and sharp re-entrant (E. von Becken and E. Helmk -- West Germany). Of interest were the results of measurements of friction, heat removal and pressure on the circumference of a cylinder placed in a single row of pipes (S. Oka et al -- Yugoslavia). The report of B. Gay and N. MacLay (England) dealt with investigation of an electrochemical method of stimulating the process of heat transfer in pipes.

A group of reports was devoted to heat exchange and hydrodynamics in phase transformations, in particular during two-phase flow in pipes (R. Somerla -- France, and G. Hewitt -- England). Heat exchange during the evaporation and condensation of binary mixtures were discussed (H. Baldur and E. Abschich -- West Germany), and engineering methods of calculating heat exchangers under conditions of condensation of steam from mixtures of steam and gas on smooth and ribbed pipes (T. Mizushima -- Japan).

In the report of E. Harpell and R. Hickman (USA) an analysis was made of the problem of diffusion of a substance during runoff of a film of liquid solution and a correlation was obtained which connects the limiting rate of evaporation with the dimensions of the crystals falling on the surface. U. Chavi (West Germany) discussed a new design of a Freon-22 evaporator and the results of measurements of heat removal. The use of a mixing chamber in which there is intensive mixing of the jet of steam and the liquid permits increasing by several times the intensity of heat exchange in the evaporator.

The question of packed regenerative heat exchangers was widely illuminated (G. Hansen -- West Germany, L. Marshall -- Italy, B. Granville and G. Bird -- England, J. Smollet and V. Olavicka -- Czechoslovakia, D. Arrahim -- France, and V. Dul -- Poland, and P. G. Polak -- USSR).

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Various methods of intensifying heat exchange which permit substantially improving the characteristics of heat exchangers were discussed. ①

The seminar made it possible for its participants to become acquainted with the results of the most important investigations conducted in various countries in the area of heat exchange equipment. It was decided to devote the next seminar to the problem "Heat and mass exchange from flames" and to hold it in 1973, also in Yugoslavia.

USSR

FURSEY, G. N., ANTONOV, A. A., and ZHUKOV, V. M.

"Exploding Emission Accompanying the Transition from Field Emission to Vacuum Breakdown"

Leningrad, Vestnik Leningradskogo Universiteta: Fizika, Khimiya; April-June, 1971, pp 75-78

Abstract: The effect of the transition from field emission to vacuum breakdown has been studied on a single tungsten tip (the field current densities range, $4 \cdot 10^7$ A/cm² - $3 \cdot 10^9$ a/cm²; pulse duration range, $5 \cdot 10^{-9}$ - $3 \cdot 10^{-8}$ sec). The presence of an abrupt electron current rise at the start of breakdown with the following slow electron current increase during the development of the break-down process was observed (abrupt current rise rate is 10^9 a/sec at $j \approx 10^9$ a/cm² and 10^8 a/sec at $j \approx 10^8$ a/cm²). Electron microscope studies show that microprotrusions form on the emitter surface during the break-down process. It takes only $(2-3) \cdot 10^{-9}$ sec for such a protrusion to occur. This proves the presence of a very strong electric field near the surface of the exploded tip during the formation of break-down.

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UNCLASSIFIED
TITLE--HEAT TRANSFER DURING THE BOILING OF FREON 113 ON THE SURFACE OF A
VERTICAL CYLINDRICAL ROD -U-
AUTHOR--(03)--KOVALEV, S.A., ~~ZHUKOV, V.Y.~~ KAZAKOV, G.M.
COUNTRY OF INFO--USSR
SOURCE--TEPLOFIZ. VYS. TEMP. 1970, 8(1), 217-19
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, PHYSICS
TOPIC TAGS--HEAT TRANSFER, CALCULATION, FREON, NUCLEATE BOILING
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1989/0770
CIRC ACCESSION NO--AP0107312
STEP NO--UR/0294/70/008/001/0217/0219
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0107312
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE HEAT TRANSFER OF FREON 113 (SATN. TEMP., 47.6 DEGREES AT 1 ATM) WAS STUDIED. MODES OF HEAT TRANSFER IN BOILING FREON WERE OBSD. ON 4 AND 10MM DIAM. (D) TUBES OF VARIOUS LENGTHS (L) TO GIVE L-D EQUALS 5. HEAT TRANSFER CALCN. WERE MADE ACCORDING TO S. A. KOVALEV AND L. F. SMIRNOVA (1968). OBSERVATIONS SHOWED NUCLEATE BOILING (A) AT TEMP. DIFFERENCES (ΔT) LESS THAN 21 DEGREES, TRANSITIONAL BOILING (B) AT ΔT 21-76 DEGREES, AND FILM BOILING (C) AT ΔT IS GREATER THAN 76 DEGREES. THE HEAT FLOWS (Q) AT A AND B WERE SEVERAL TIMES LARGER THAN THE CRIT. Q FOR ISOTHERMAL CONDITIONS; ON A 4 MM DIAM. ROD A Q OF 2.2 TIMES 10 PRIME 6 W-M PRIME 2 WAS OBSD. WHEREAS IN THE C RANGE THE INCREASE IN Q WAS INSIGNIFICANT. EXPTL. RESULTS IN WHICH A, B, AND C OCCURRED SIMULTANEOUSLY AGREED TO WITHIN 15 AND 25 PERCENT, WITH CALCD. Q FOR 10 AND 4 MM DIAM. RODS, RESP., AND TO 30 PERCENT IN C.

UNCLASSIFIED

USSR

UDC 615.214.2.015.4:599.742.7-151

EUROV, Yu. V., and ZHUKOV, V. N., Laboratory of Nervous System Pharmacology, Institute of Pharmacology, Academy of Medical Sciences USSR, Moscow

"The Effects of Psychotropic Agents on Aggressive Behavior in Cats"

Moscow, Farmakologiya i Toksikologiya, Vol 36, No 2, 1973, pp 143-146

Abstract: The effects of chlorpromazine (I), trifluoperazine (II), haloperidol (III), meprobamate (IV), benactyzine (V), chlordiazepoxide (VI), and morphine (VII) were evaluated on two types of aggressive behavior in cats. In one situation fed, adult, cats were permitted to attack and kill white mice; this type of aggressive behavior did not have an emotional component (hunching, piloerection, hissing). In the other situation the cats lunged at dogs at a distance of 0.5 m as a defensive measure; in this situation a definite emotional component was present in the form of hunching, hissing, and piloerection. The drugs were administered intraperitoneally 1 h before experiments were conducted. In the cat-mouse system, I-IV and VII partially or completely alleviated the aggressive action either by prolonging the latent period (which in the controls was practically zero), or by evidence of disinterest. I-III were administered in doses of 1-4 mg/kg, IV was given in a dose of 60-80 mg/kg, and VII at a dose of 2-4 mg/kg. V and VI had no effect on the aggressiveness of cats in 1/2

USSR

BUROV, Yu. V. and ZHUKOV, V. N., Farmakologiya i Toksikologiya, Vol 36, No 2, 1973, pp 143-146

this system. In the cat-dog system the aggressiveness of cats and the emotional component were decreased by I (2 mg/kg), II (2 mg/kg), III (1-2 mg/kg), and VII (2 mg/kg). IV (60-80 mg/kg), V (1.5-3 mg/kg) and VI (10 mg/kg) were without effect. With the exception of IV in the cat-mouse test, the tranquilizers did not alter the aggressive behavior of cats, irrespective of whether an emotional component was involved or not.

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Instrumentation and Equipment

USSR

UDC 669.721

VIKHAREV, A. F., YEGOROV, A. P., ZHUKOV, V. P., CHUKAL'SKIY, YE. N., and
LEBEDEV, A. I.

"Mastering the Continuous Refining of Magnesium in a Mixer for the Titanium Industry"

Moscow, Tsvetnyye Metally, No 6, 1972, pp 44-46

Abstract: The mixer is divided into two sections and filled with electrolyte (chloride salts). The magnesium is purified by passing it through a layer of electrolyte under the vertical divider from one section to the other. The sludge is collected at the bottom of the mixer, which is inclined at 45° in each section. A special automatic grab bucket facilitates sludge removal. The mixer is lined with graphite and magnesite in order to withstand high temperatures. Pipe heaters containing molten salts (K, Na, Mg, Ca chlorides) are used to heat the mixer. The magnesium is transported to and from the mixer by a vacuum ladle equipped with one or two tap holes. The magnesium is protected from oxidation by a flux mixture sprayed into the mixer by compressed argon for 5-10 seconds after each teeming and evacuation of the magnesium. Analysis of the mixer sludge showed that magnesium losses amounted to only 0.22% in 1970; it varied from 0.1 to 0.3%, depending on the frequency
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VIKHAREV, A. F., et al., Tsvetnyye Metally, No 6, 1972, pp 44-46

of sludge removal. In 1970, average consumption of argon was $0.4 \text{ m}^3/\text{ton Mg}$; average consumption of flux was 0.3 kg/ton Mg . The authors recommend much wider use of such mixers in the titanium industry.

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USSR

UDC 621.396.967

ZHUKOV, V. V., DUBNIK. B. S.

"Radar Equipment for Measuring Meteor Altitudes"

Radiotekhnika. Resp. mezhved. nauch.-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific and Technical Collection), 1971, vyp. 16, pp 25-29 (from RZh-Radiotekhnika, No 11, Nov 71, Abstract No 11G44)

Translation: The circuitry of a phase altimeter is described. Its technical characteristics are given as well as the results of measurements: a histogram of the altitude distribution of meteors, and altitude dependences of the coefficient of diffusion and the average velocity of meteors for unsaturated trails. Bibliography of four titles. Resumé.

1/1

61

UNCLASSIFIED

PROCESSING DATE--17JUL70

TITLE--WELDING OF GOLD TO KGVAR BY LASER RADIATION -U-

AUTHOR--ZELKOV, V.V.

Z

COUNTRY OF INFO--USSR

SOURCE--KIEV, AVIATOTCHESKAYA SVARKA NO 1, 1970, PP 47-48

20
5
25

DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--GOLD, NICKEL ALLOY, COBALT ALLOY, IRON ALLOY, LASER WELDING,
WELD JOINT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1979/0065

STEP NO--UR/C125/70/000/001/0047/0048

CIRC ACCESSION NO--AP0046761

UNCLASSIFIED

Acc. Nr.: AP0046761

Ref. Code: UR0125

USSR

ZHUKOV, V. V.

UDC 621.72:535.14

"Welding of Gold to Kovar by Laser Radiation".

Kiev, Avtomaticheskaya Svarka (Automatic Welding), No 1, 1970, pp 47-48
(from Avtomaticheskaya Svarka, No 1, 1970, p 80)

Translation: It is demonstrated that laser welding of gold wire with
current-conducting elements made of kovar insures high-quality joints.
There is 1 illustration.

Reel/Frame
19790065

USSR

~~ZHUKOV, V. V.~~ SERPINSKIY, V. V.

"Thermal Coefficient of Limiting Adsorption of Carbon Dioxide on NaX Zeolite"

Termicheskiy Koeffitsient Predel'noy Adsorbtsii Dvuyokisi Ugleroda na Tseolite NaX [English Version Above], Moscow, 1971, 4 pages (Translated from Referativnyy Zhurnal, Khimiya, No 2, 1972, Abstract No 2 B1391 Dep. by the author's).

Translation: A study of the adsorption of CO_2 on NaX zeolites at high pressures is used to determine the value of α , which is very significant in the theory of volumetric filling of micropores. $\alpha = -d \ln a_0/dT$, where a_0 is the limiting adsorption of vapor in the micropores (at $P = P_s$), T is the temperature. Coefficient α is constant up to the critical temperature, equal to $1.7 \cdot 10^{-3} \text{ deg}^{-1}$.

1/1

USSR

ZHUKOV, V. V., SERPINSKIY, V. V.

"Study of Adsorption of Carbon Dioxide on Zeolite at Pressures from 0.1 to 72 atm"

Issledovaniye Adsorbtsii Dvuyokisi Uglereda na Tseolite pri Davleniyakh ot 0.1 do 72 atm [English Version Above], Moscow, 1971, 12 pages (Translated from Referativnyy Zhurnal, Khimiya, No 2, 1972, Abstract No 2 B1393 Dep. by the author's).

Translation: Adsorption of CO_2 on zeolite is studied in the pressure interval from 0.1 to 72 atm in the temperature range from 0 to 150° on a specially constructed installation. The value of adsorption a and equilibrium pressure P are interpolated for various temperatures. The full content isosters are linear throughout the range of temperatures and pressures studied. The adsorption isotherm is successfully described by the Freundlich equation.

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- 4 -

USSR

UDC 612.74

ZHUKOV, YE. K., BARBASHOVA, Z. I., and FEDOROV, V. V., Laboratory of the Evolution of Motor Functions and Laboratory for the Study of the Resistance of the Organism, Institute of Evolutionary Physiology and Biochemistry imeni I. M. Sechenov, Academy of Sciences USSR

"The Effect of Hypokinesia on the Functional State of Skeletal Muscles"

Leningrad, Fiziologicheskij Zhurnal SSSR imeni I. M. Sechnow, Vol 57, No 9, 1971, pp 1,240-1,245

Abstract: Strict, 1-month immobilization of young rats, with only some freedom of motion allowed for the head and front paws to facilitate eating, causes a significant deterioration of the skeletal muscles. The weight of some muscles decreases 40% below the control level. The tension developed during single muscle twitches and during tetanic contractions is about 30% of the normal tension. The speed with which tension develops in a single twitch and the speed of relaxation are significantly reduced. The time required to develop maximum tension in a tetanic contraction is markedly prolonged. The threshold of excitability is considerably elevated. These changes are more pronounced in fast muscles (gastrocnemius, plantaris) than in slow muscles

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USSR

ZHUKOV, YE. K., et al., Fiziologicheskii Zhurnal SSR imeni I. M. Sechenov, Vol 57, No 9, 1971, pp 1,240-1,245

(soleus). It is concluded that prolonged hypokinesia causes dystrophic degeneration of skeletal muscles which may be due to simple lack of activity (tenotomy), or to an absence of afferent impulses which normally stimulate the reticular formation (physiological denervation), or to inhibition of the calcium pump in the sarcoplasmic reticulum.

2/2

USSR

UDC 612.74+612.58

ZHUKOV, Ye. K. and FEDOROV, V. V., Laboratory of Evolution of Motor Activity,
Institute of Evolutionary Physiology and Biochemistry imeni I. M. Sechenov,
Academy of Sciences USSR, Leningrad

"The Effect of Cooling on Contractions of Skeletal Muscles in Mammals."

Leningrad, Fiziologicheskii Zhurnal SSSR, Vol 56, No 4, 1970, pp 575-581

Abstract: The effect of cooling the skeletal muscles of white rats on the strength and velocity of single isometric contractions, isometric tetanus and potassium contractures (80 and 160 mM KCl), was studied. Lowering the temperature from 37° to 20°C does not affect the tension developing during single contractions, but somewhat decreases the tension of maximal tetanus. Under the same conditions, the period of maximum shortening of muscles increases 3.3-3.5 times, the period of decrease by half of single contractions -- 3.5-4.5 times, and the period of development of maximum tetanus by 1.7-2.3 times. The duration of the active state increases 2.4-2.9 times. After lowering the temperature from 37° to 20°C, the amplitude of potassium contractions remains almost unaffected, whereas the time of adaptation relaxation increases 5-9 times. Possible causes of the observed changes are discussed.

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1/2 031
UNCLASSIFIED
TITLE--THE EFFECT OF COOLING ON THE CONTRACTION OF THE SKELETAL MUSCLES IN
THE MAMMALS -U-
AUTHOR--(02)-ZHUKOV, YE.K., FEDOROV, V.V.
PROCESSING DATE--13NOV70
COUNTRY OF INFO--USSR
SOURCE--FIZIOLOGICHESKIY ZHURNAL SSSR IMENI I. M. SECHENOVA, 1970, VOL 56,
NR 4, PP 575-581
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--MUSCULOSKELETAL SYSTEM, WHITE RAT, POTASSIUM, MUSCLE
PHYSIOLOGY, COOLING
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3005/0373
STEP NO--UR/0239/70/056/004/0575/0581
CIRC ACCESSION NO--AP0132602
UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0132602

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF COOLING THE SKELETAL MUSCLES OF ALBINO RATS UPON STRENGTH AND VELOCITY OF SINGLE ISOMETRIC CONTRACTIONS, ISOMETRIC TETANUS AND POTASSIUM CONTRACTURES (80 AND 160 MM KCL), WAS STUDIED. DECREASE OF TEMPERATURE FROM 37 TO 20DEGREES C DOES NOT AFFECT THE TENSION DEVELOPING DURING SINGLE CONTRACTIONS, WHEREAS IT SOMEWHAT DECREASES THE TENSION OF MAXIMAL TETANUS. UNDER THE SAME CONDITIONS, THE PERIOD OF MAXIMUM SHORTENING OF MUSCLES INCREASES BY 3.3-3.5 TIMES, THE PERIOD OF HALF DECAY OF SINGLE CONTRACTIONS BY 3.5-4.5 TIMES, AND THAT OF THE DEVELOPMENT OF MAXIMUM TETANUS BY 1.7-2.3 TIMES. THE DURATION OF THE ACTIVE STATE INCREASES BY 2.4-2.9 TIMES. ON LOWERING THE TEMPERATURE FROM 37 TO 20DEGREES C, THE AMPLITUDE OF POTASSIUM CONTRACTIONS REMAINS ALMOST UNAFFECTED, WHEREAS THE TIME OF ADAPTIONAL RELAXATION INCREASES BY 5-9 TIMES. POSSIBLE CAUSES OF THE OBSERVED CHANGES ARE DISCUSSED. FACILITY: I. M. SECHENOV'S INSTITUTE OF EVOLUTIONARY PHYSIOLOGY AND BIOCHEMISTRY ACADEM. SCI. USSR, LENINGRAD.

UNCLASSIFIED

THIS DOCUMENT CONTAINS NO INFORMATION OF VALUE TO THE UNITED STATES

DATE 11-11-72 UNCLASS.

MA 2

USSR INTERNATIONAL AFFAIRS
VIETNAM DEVELOPMENTS

Zhuoyi Commentary

Moscow Pravda in Russian 7 Jul 72 p 5 2

Article by Yu. Zhukov, deputy chairman of the Soviet Committee for the Defense of Peace:
"Attention: ~~the~~ passage between alantines printed in boldface)

[Text] Listen, people, listen carefully: Scientists of many countries, American scientists included, politicians and diplomats, and journalists who, in the course of their duty, are now working under the hail of American bombs in Indochina are increasingly loudly testifying to and warning about the new, really brutal venture which the Pentagon has devised and has already begun to implement. The matter in hand is the destruction of direct protecting river and sea coastal lowland from flooding at high water.

I have been in Vietnam and for the whole of my life I shall remember this incomparable, magnificent sight: Very high embankments, curbing the east terrible floods, stretch for hundreds of kilometers, winding obediently along the river banks. A stretch hundreds and thousands of years to build. Some rivers, carrying sand, clay, loess and gravel from the mountains, seem to be wasting a battle against narrow channels set deeper and deeper; and, in an effort to protect their fields and villages, people have been adding to the dikes from century to century.

Who can forget the story about the people who, seeing that water was threatening them in the dikes, put the bodies of the dead and old men and women in them. Cold, until people arrived to arrest the evil-doers, they would be people who would /consciously/ destroy dikes.

Then China About the Unthinkable

On 3 June in the American periodical NEW REPUBLIC Gareth Porter, Cornell University research fellow, recalled that during the retreat of the Japanese at the end of 1944 the dikes in this country and flooded 500,000 acres of land. In the Netherlands, destroyed fall of 1945, when our Soviet delegation flew over the Netherlands on the way to London and the World Congress of Democratic Youth, we saw the roads of flooded villages protruding from the sea.

Who could have thought then that this crime would be entered in the records of certain military staffs as a precedent to be used in case of need. This record of certain but in January 1967, when Johnson's disastrous air war against the DRV began to fail, the U.S. Armed Forces chiefs of staffs involved about the possibility of destroying dikes in Vietnam.

The Pentagon asked the CIA's opinion. What did it think about repeating the experience in Vietnam. The bare businesslike reply was: /if done in time (?!), the bombing of the system of dikes which prevents the waters of the Red River from overflowing their banks could cause the loss of a large part of the harvest./

It must be noted, however, that even the CIA specialists quailed at the thought of the reaction which the bombing of dikes in Vietnam would evoke throughout the world.

ZHU KOU, Yu

Dep. Chmn. of Sov. Comm. for Def. of Peace

USSR

UDC 616.932-085.2

ZHUKOV-VEREZHENIKOV, N. N., LOBAN, K. M., and BAYZHANOV, T., Scientific Research Laboratory of Immunobiology Academy of Medical Sciences USSR and Chair of Infectious Diseases Patrice Lumumba Peoples Friendship University

"Chemotherapy in the Comprehensive Treatment of Cholera Patients"

Moscow, Sovetskaya Meditsina, Vol 33, No 7, Jul 70, pp 17-19

Abstract: Experience has shown that cholera patients recover best when they are given comprehensive treatment that includes etiologial, pathogenetic, and symptomatic measures. The severe loss of body fluids can be offset by infusing isotonic solutions of NaCl, NaHCO₃, and KCl (5-7 liters per day initially, later an amount equal to the loss). If the disease involves cardiovascular collapse and extrarenal coma, it is also necessary to infuse blood extenders and detoxifying substances (e.g., polygluconates), cardiac glycosides, vasopressors, and large amounts of corticosteroids. Bacteriostatic and bacteriocidal antibiotics should be given for 7-8 days, at first parenterally and then, after vomiting subsides by mouth. The most effective are levomycetin, tetracyclines, sigmamecin, and oletetrim. In over 90 percent of the patients treated, cholera vibrios disappeared from the faeces after 24 hours. The duration of diarrhea and vomiting

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ZHUKOV-VEREZHNIKOV, N. N., et al, Sovetskaya Meditsina, Vol 33, No 7, Jul 70,
pp 17-19

was half that of patients who received no antibiotics, and the period of convalescence was also shortened. When rehydration solutions and antibiotics are given in the initial stage of the disease, the acute form of cholera is prevented.

2/2

USSR

UDC 666.22:539.551

NEMILOV, S. V., KRYLOVA, L. A., ROMANOVA, N. V., ZHUKOVA, A. N., ALEKSEYEVA, R. A.,
NOVIKOVA, M. P., BESPAL'KO, Z. P., and TINYANKINA, A. N.

"Viscosity of Optical Glasses"

Leningrad, Zhurnal Prikladnoy Khimii, Vol 43, No 6, Jun 70, pp 1218-1225

Abstract: The viscosity η of 120 grades of glass ($\eta = 10^2 - 10^{13}$ poises) in relation to the temperature was determined. The results are listed in tables showing values of $\lg \eta$ for various temperatures t . The values included in the tables were obtained in part by interpolation and extrapolation of experimental values to cover the complete $\eta = 10^1 - 10^{16}$ poises range ($t = 312-2010^\circ$). Determinations at $10^4 - 10^{13}$ poises were carried out by the method of pressing in described earlier, those at $10^1 - 10^4$ poises by means of GOI automatic rotational viscosimeters. Measurements of η carried out by the first method on glass No 710 of the USA National Bureau of Standards led to results which coincided with those reported by A. Napolitano and E. G. Hawkins, J. Res. Nat. Bur. Stand., A. Phys. a. Ch., 68A, 439, 1964. The rotational viscosimeters were calibrated at $10^2 - 10^4$ poises on the basis of values reported for glass No 710. Data obtained for B_2O_3 by means of these viscosimeters agreed with those reported in the literature. A glass with the composition SiO_2 69.60, B_2O_3 11.09, Al_2O_3 2.00, As_2O_3 0.10, SnO 0.65, CaO 1.37, 1/2

USSR

NEMILOV, S. V., et al., Zhurnal Prikladnoy Khimii, Vol 43, No 6, Jun 70,
pp 1218-1225

MgO 0.80, K₂O 4.16, Na₂O 10.23 mole % was formulated, measurements on which
in the $10^2 - 10^{13}$ poises² (t = 600-1300°) range led to results that were readily
reproducible.

2/2

1/2 010
TITLE--REACTION OF SILANDILS WITH SILICATES -U- UNCLASSIFIED PROCESSING DATE--11SEP70
AUTHOR--KHARITONOV, N.P., GLUSHKOVA, N.E., ZHUKOVA, A.S.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(1), 59-62
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ORGANOSILICON COMPOUND, SILICATE, HYDROXYL RADICAL, ASBESTOS,
TALC, CONDENSATION REACTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/1660 STEP NO--UR/0363/70/006/001/0059/0062
CIRC ACCESSION NO--AP0104882
UNCLASSIFIED

2/2 010

CIRC ACCESSION NO--AP0104882

UNCLASSIFIED

PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF SILANOLS (ET SUB3
SIOH, PH SUB3 SIOH, PH SUB2 SIMEOH, PH SUB2 SI(OH)SUB2) WITH MUSCOVITE,
CHRYSTILE ASBESTOS, AND TALC IN BOILING XYLENE (150DEGREES) WAS
STUDIED. IN THE MAJORITY OF CASES, CONDENSATION TAKES PLACE BETWEEN THE
SURFACE HYDROXY GROUPS OF THE SILICATE AND THE HYDROXY GROUPS OF THE
SILANOL.

UNCLASSIFIED

USSR

UDC 621.382:621.317.799

MORDKOVICH, V.N., ZHUKOVA, G.A.

"Determination Of Path Of Low Energy Ions"

Elektron. tekhnika. Nauchno-tekhn. sb. Poluprovodn. pribory (Electronic Technology. Scientific-Technical Collection. Semiconductor Devices), 1970, Issue 2(52), pp 71-76 (from RZh--Elektronika i yeye primeneniye, No 3, March 1971, Abstract No 3B464)

Translation: A method is proposed for determining the path of low-energy particles (e.g., protons with an energy ~ 50 kev) in dielectric and conducting films. The method uses the change of the rate of surface recombination of minority charge carriers in a semiconductor or the charge of the dielectric-semiconductor interface. In their turn the latter parameters are found from the voltfarad characteristics of the MOS structure. Experimental data are presented on determination of the path of protons in SiO_2 films, 9 ref. V.K.

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1/2 005
TITLE--REACTION OF THALLIUM (III) CHLORIDE WITH SODIUM PYROPHOSPHATE -U-
AUTHOR--(03)-GRINEVA, A.V., ZHUKOVA, G.T., PRESNYAK, N.T.
COUNTRY OF INFO--USSR
SOURCE--ZH. NEORG. KHIM. 1970, 15(2), 584B5
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHLORIDE, SODIUM PYROPHOSPHATE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1987/0790
CIRC ACCESSION NO--AP0104236
UNCLASSIFIED

PROCESSING DATE--18SEP70
Z

STEP NO--UR/0078/70/015/002/0584/0584

2/2 005

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104236

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TL SUB4(P SUB2 O SUB7) SUB3, NATLP SUB2 O SUB7. 4H SUB2 O (I), AND NA SUB5 TL(P SUB2 O SUB7) SUB2. 8H SUB2 O (II) FORM IN THE TLC SUB3-NA SUB4 P SUB2 O SUB7-H SUB2 O SYSTEM AT DIFFERENT CONC. OF COMPONENTS. THESE COMPNDS. ARE SOL. IN DIL. HCL, H SUB2 SO SUB4, AND HNO SUB3, SLIGHTLY SOL. IN H SUB2 O, AND INSOL. IN ORG. SOLVENT. THERMOGRAPHS OF I AND II SH4W LOSS OF H SUB2 O OF CRYSTN. AT 180 AND 220DEGREES, RESP., AND P4LYMORPHOUS TRANSITION AT 470 AND 450DEGREES, RESP. NATLP SUB2 O SUB7 MELTS AT 580 AND NA SUB5 TL(P SUB2 O SUB7) SUB2 AT 650DEGREES. AT GREATER THAN 770DEGREES THE COMPNDS. DECOMP. WITH REDN. OF TL(III) TO TL(I).

UNCLASSIFIED

Biophysics

USSR

UDC 576.343

BINYUKOV, V. I., BORUNOVA, S. F., GOL'DFELD, M. G., ZHUKOVA, I. G., KUDLAY, D. G., KUZNETSOV, A. N., SHAPIRO, A. B., and OSTROVSKIY, D. N., Institute of Biochemistry imeni A. N. Bakh, Academy of Sciences USSR, Moscow, Institute of Chemical Physics, Academy of Sciences USSR, Moscow, and Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Moscow

"Investigation of Structural Transformations in Biomembranes by Means of the Spin-Probe Method: Temperature-Induced Changes in Bacterial Membranes"

Moscow, Biokhimiya, Vol 36, No 6, Nov/ Dec 71, pp 1149-1155

Abstract: To investigate changes induced in bacterial membranes by temperature changes within a physiological range, isolated and sound-disintegrated membranes of *M. lysodeikticus* and *E. coli* were mixed and incubated with the free iminoxyl radicals 1,1,3,3,7-pentamethyl-7,8-benzo-1,2,3,4-tetrahydro-pyrrolo-(3,4-beta)-indole-2-oxyl (I) and 2,2,6,6-tetramethyl-4-capryloyloxy-piperidine-1-oxyl (II) serving as indicators of structural changes. Compound I was incorporated in the protein fraction and compound II in the lipid fraction of the membranes. The correlation observed between the spin diffusion of the test molecules and the temperature indicates that structural transformations take place in both the protein and the lipid fractions. The drastic changes which occur in the EPR signal of the radicals at elevated

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USSR

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BINYUKOV, V. I., et al., Biokhimiya, Vol 36, No 6, Nov/Dec 71, pp 1149-1155

temperatures suggest that high temperature induces conformational transformations in the protein fraction, and these induce structural transformations in the lipid fraction of bacterial membranes.

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USSR

UDC 576.341

BINYUKOV, V. I., ZHUKOVA, I. G., and OSTROVSKIY, D. N., Institute of Biochemistry imeni A. N. Bakh, Academy of Sciences USSR, Moscow

"Evaluation of the Secondary Structure of Proteins of Bacterial Membranes on the Basis of Infrared Spectroscopy Data"

Moscow, Doklady Akademii Nauk SSSR, Vol 198, No 6, 1971, pp 1,457-1,460

Abstract: The structural organization of protein in *Micrococcus lysodeikticus* and *Escherichia coli* membranes was studied through the infrared spectroscopy of dry films and also on the basis of the $H \rightleftharpoons D$ exchange rate in moist preparations of intact and defatted membranes. The reason for the study was the small amount of information on the state of basic components of biological lipoprotein membranes. It is noted that the application of many physical methods such as nuclear magnetic resonance and infrared spectroscopy has shown that proteins in membranes of different origins are in an α -spiral and disordered tangle state and that the β -form is apparent only under special conditions. Bacterial membranes were previously studied only in a paper by Lenard and Singer in 1966, who observed that the parameters of optical rotatory dispersion and circular dichroism of membranes of *Bac. subtilis* are very similar to the parameters for erythrocytes. This was

172 006
UNCLASSIFIED
PROCESSING DATE--20NOV70
TITLE--STALOGYCOLEPTOS OF THE STARFISH DESTOLASTERIAS NIPON. STRUCTURE OF
THE OLIGOSACCHARIDE CHAIN--U-
AUTHOR--(C4)--KOCHEIKOV, N.K., ZHUKOVA, I.G., SHIRNOVA, G.P., BUGDANOVSKAYA,
T.A.
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKADE. NAUK SSSR 1970, 191(2), 358-61, CHEM
DATE PUBLISHED--70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--STARFISH, LIPID, FRACTIONATION, CHROMATOGRAPHIC SEPARATION,
SILICA GEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3003/1489
CIRC ACCESSION NO--AT0130418
STEP NO--UR/0020/70/191/002/0358/0361
UNCLASSIFIED

272

006

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AT0130418

ABSTRACT/EXTRACT--(U) GP-C-

ABSTRACT.

CHROMATOGRAPHY ON SILICA GEL AND ACID
HYDROLYSIS WERE USED ALONG WITH METHANOLYSIS AND METHYLATION WITH MEL TO
SHOW THAT THE STARFISH YIELDS AT LEAST 3 GLYCOLIPIDS (A, B AND C) WHICH
ON METHANOLYSIS YIELD PHYTOSPHINGOSINE AND ME ESTERS OF HIGHER FATTY
ACIDS. A AND C CONTAIN ONLY D GLUCOSE WHILE C CONTAINS D GLUCOSE AND D
GALACTOSE, IN EQUAL AMTS. PARTIAL STRUCTURES ARE DEFINED.
FACILITY: INST. GRC. KHIM. IM. ZELINSKOGO, MOSCOW, USSR.

UNCLASSIFIED

ZHUKOVA, L.A.

TPRS 5/22/08

6-73

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VII-1b. PROPERTIES OF
THE Ca-AsCl₃-H₂ SYSTEM

Article by L. I. Dyachenko, L. A. Zhukova, R. S. Kopylovich, V. N. Maslov, V. Yu. Papelyukh, B. I. Rude, Ye. V. Solov'yeva, Moscow, Novosibirsk, Leningrad, and P. A. Prokhorov, Krasnodar, Siberian Federal Scientific Center, Novosibirsk, 12-17 June, 1972, p. 86)

layers of gallium arsenide grown in the Ga-AsCl₃-H₂ system were alloyed either by thermal evaporation of the impurity (Fe, In) or by introduction of it in the form of a Kneseev compound (H₂Se, (C₂H₅)₂Se). The dependence of the carrier concentration in the layer on the admixture concentration and the growth rate of the layer drops almost to zero whereas the tellurium concentration of the electrophysical parameters of the layer practically has no effect on the growth rate. The use of diethyl zinc does not lead to worsening of the electrophysical parameters of the layers by comparison with the alloying by the method of thermal evaporation of zinc. The concentration with the alloying of the gas flow increases in the layers alloyed with zinc, the concentration of the carrier increases a little. This difference is reduced in the direction of the layers alloyed with tellurium and selenium in comparison with the difference in the coefficients of the vapor-crystal junction. In the layers alloyed with selenium the degree of compensation is connected with location density and the number of growth pyramids. According to calculations with selenium with a carrier concentration of the donors an increase in the dislocation density to the type of $3 \cdot 10^{11}$ cm⁻² and in the microdefect was observed. At low alloying levels with selenium (3-10¹⁰ cm⁻²) and in the entire range of alloying with zinc using diethyl zinc, the morphology of the layers does not change.

ZHUKOVA, L. A.

SPRS 89205

6-73

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IX-9. OBTAINING SINGLE SILICON CARBIDE CRYSTALS IN THE CUBIC VERSION (6-SiC)
AND THE STUDY OF THEIR STRUCTURE

Article by M. D. Bekman, N. K. Prokof'eva, V. G. Fedin, L. A. Zhukova, L. A. Shengul'ova, Moscow; Novosibirsk, Ill. Symposium on Progress in Russia and Soviet Union, 12-17 June 1977, p. 113.

A study was made of the possibility of obtaining single β -silicon carbide crystals by thermal reduction of the vapor-phase mixture using methyl trichlorosilane-toluene (ratio C:Si > 1).

By using the C_{14} radiolenscope, the participation of an additional carbon-containing compound introduced into the vapor-phase mixture in the reaction of formation of the β -silicon carbide was demonstrated.

The optimal conditions for growth of plate single crystals with dimensions of the order of 4×6 mm in individual cases were determined. In the bulk of the grown crystals, the point-contact and diffraction light diodes and also barrier-layer photoelements were manufactured.

X-ray diffraction and electron diffraction studies were used to demonstrate the theoretical possibility of obtaining perfect crystals by the indicated method.

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11-12. STUDY OF PERFECTING OF THE STRUCTURE, UNIFORMITY AND COMPOSITION OF Gels-GAP. MONOCRYSTALLINE FILMS OBTAINED BY THE ETHANOLIC METHOD

Article by M. G. Shumakova, L. N. Zhukova, Ye. M. Kiseleva, V. N. Maslova, V. G. Zolotareva, N. A. Novikova, and I. I. Stokolova, pp. 169-174, 1972, *Journal of Polymer Science, Polymer Chemistry Edition*, 10, No. 1, 169-174, 1972, Russian, 12-17 June 1972, p 177.

The x-ray double-crystal

The x-ray double-crystal, spectrometric method, the method of electron diffraction patterns, and the x-ray spectral microanalysis were used to study the perfection of the structure, the uniformity and composition of the layered amorphous films of solid solution of the GaIn-GaP system. The films were studied by the sandwich method using H_2O and HCl vapor on carrier substrates oriented with respect to the (100) and (111) planes in the GaIn system. It was demonstrated that the homogeneity with respect to carrier concentration, beginning especially sharply at 50 percent GaIn, increases in the GaP film, that the violations of the periodicity of the structure in the GaP amorphous films are basically related to the presence of the structure in the GaIn phase.

The noncorrespondence of the composition of the film obtained and the initial charge were detected. This noncorrespondence decreases with H_2O vapor carrier.

The presence of a negative deviation from the Hagedorn rule was established, which indicates compression of the lattice with the formation of the solid solution.

USSR

UDC 546.46:543.063

ZHUKOVA, M. P. and YAKOVLEV, P. YA., Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"Determination of Small Quantities of Calcium in Metallic Cobalt and Cobalt Oxide"

Moscow, Zavodskaya Laboratoriya, Vol 39, No 6, Jun 73, pp 661-662

Abstract: The relationship of calcium and cobalt (II, III) ion sorption by cation exchange resin KU-2X8 in NH_4 from solutions containing EDTA was studied with respect to solution pHs by a dynamic method. The possibility of using chlorophosphonazo III for determining calcium in eluates is indicated and a method of determining $2 \cdot 10^{-3}\%$ Ca in metallic cobalt and in cobalt (III) oxide is presented. 2 tables, 8 bibliographic references.

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USSR

UDC 539.216.2

GLADKIKH, N. T., ZHUKOVA, N. A., PROTSENKO, I. YE., and CHEKAREV, M. A.,
Kharkov State University imeni A. M. Gor'kiy

"Structure of Vanadium and Chromium Thin Films"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 1, 1973, pp 84-90

Abstract: The phase composition of vanadium and chromium films was investigated in relation to thickness and temperature of the substrate, rate of condensation and pressure of residual gases ($\sim 10^{-5}$ and $\sim 10^{-8}$ torr). It is shown that in a vacuum of 10^{-5} torr, FCC phases are formed in the films which are close in their composition to VO and CrO. Structural transformations during aging or annealing of these phases were studied along with the conditions of formation of a phase with the structure of the beta-tungsten type in the chromium films. Relationships of the BCC lattice parameter to thickness for vanadium and chromium films, condensed in a vacuum, were obtained. Thus, the film phase composition is not determined by the absolute pressure of residual gases but by the ratio of the number of metal atoms on the substrate and gas impurity atoms which depends on the condensation rate, substrate temperature, and pressure in the vacuum chamber. Five figures, 18 bibliographic references.

1/1

USSR

UDC 613.644-07:616.33-018.73+612.32.014.15

YAKUBOVICH, T. G., and ZHUKOVA, N. M., Chair of Labor Hygiene, Leningrad Sanitary Hygiene Medical Institute.

"The Effect of Whole-Body Vertical Vibration on the Gastric Mucosa of White Rats"

Moscow, Gigiyena i Sanitariya, No 12, 1970, pp 98-100

Abstract: The dynamics of histological and histochemical shifts was traced in the gastric mucosa of white rats exposed to whole-body vertical vibration (frequency of 50 hz and amplitude of 0.8 mm) for up to 180 days. Within 30 minutes of the start of vibration, the secretion of all varieties of epithelial cells in the gastric mucosa increased. A large quantity of Schiff-positive substances appeared on the surface of the mucosa. Pepsinogen granules were found in the chief cells of the terminal ends of the fundic glands. The changes intensified but then stabilized after the 10th day as adaptation developed. But by the 60th day, the regenerative capacity of the epithelium of the gastric mucosa became exhausted. The thickness of the membrane decreased in places and the number of secretory cells diminished. By the 90th day extensive degenerative changes were evident in the mucosa of the fundus ventriculi and attenuation of the mucosa became general.

1/1

USSR

UDC 678.06-419.';677.5217.01:53

VISHNEVSKIY, G. YE., ZHUKOVA, R. I., SHLENSKIY, O. F., and SHKLYAROV, A. YU.

"Effect Which the Porosity, Concentration and Properties of Components Have on the Thermal Conductivity of Fiberglass Plastics"

Moscow, Plasticheskiye Massy, No 11, Nov 70, pp 34-38

Abstract: The article presents the results of formal analysis and the use of Maxwell's electrothermal analogy for the thermal conductivity of dispersed media in studying the effect of porosity, cracks, gas inclusions and the mutual arrangement of the filler and binder elements on the processes of thermal conductivity in the primitive cells of the structural elements of fiberglass plastics. It was found that two- and three-dimensional electrothermal modeling can be used to refine the results of formal analysis.

1/1

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USSR

UDJ 621.52.C01

GEL', E.P., DYAD'KIN, I.G., ZHUKOVA, S.A.

"Carrying Capacity Of Glass Stem With A Constriction For Flow Of Highly Rarified Gases"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 1, pp 137-142 (from RZh--Elektronika i yeye primeneniye, No 7, July 1970, Abstract No 7A29)

Translation: The paper computes by the Monte-Carlo method the carrying capacity of a stem with a restriction of various types for the flow of rarified gases. An empirical formula is obtained for the dependence of the carrying capacity on the geometrical dimensions of the constriction. Data are presented on the density of impacts of the molecules with the surface of the stem for all of its length. 3 ref. Summary.

1/1

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- 70 -

USSR

UDC 616.936-07

DUKHANINA, N. N., SARIKYAN, S. Ya., ZHUKOVA, T. A., KHROMOV, A. S., and
ALEKSEYEVA, Z. M., Institute of Medical Parasitology and Tropical Medicine
imeni Ye. I. Martsinovskiy, Ministry of Health USSR

"Detection of Malaria Cases in the USSR Between 1967 and 1970"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, No 3, 1972,
pp 319-323

Abstract: Many malaria cases are not detected early due to some laxness in the system induced by the virtual eradication of the disease and by the inconvenience and costliness of running mass screening tests. Study of two groups of malaria patients and parasite carriers - local residents, including those who contracted malaria after receiving blood transfusions, and Soviet citizens returning from trips to Asia and Southeast Asia and foreign nationals - showed that the disease was not detected in most of the local residents until they sought care in a medical facility, only 40% (out of 234) doing so 1 to 5 days after the onset. The disease was detected earlier in the second group, mostly students, because they tended to visit a physician promptly. Some delays were occasioned by an absence of symptoms for a long time (6 to 12 months) owing to the protracted latent period of the causative agent.

1/1

USSR

UDC 911.3.616.936(47 57)

DUKHANINA, N. N., SARIKYAN, S. Ya., ZHUKOVA, T. A., and BANDIN, A. I.
"Characteristics of Malaria Foci During the Final Period of Its Elimination
in the USSR"

V sb. Materialy Nauchn. konferentsii, posvyashch. 50-letiyu In-ta med.
parazitol. i tropich. med., 1970 (Proceedings of the Scientific Conference
Commemorating the 50th Anniversary of the Institute of Medical Parasitology
and Tropical Medicine, 1970 -- collection of works), Moscow, 1970, pp 14-16
(from RZh-36. Meditsinskaya Geografiya, No 1, Jan 71, Abstract No 1.36.129
by V. Maslovskaya)

Translation: Cases of malaria brought into the country from abroad are
most often recorded in the central zone and in the south RSFSR. Isolated
residual foci persist in only a few rayons of the Azerbaydzhan, Georgian,
Uzbek and Tadzhik SSRS, where 5-7 parasite life cycles are possible per
season. In areas with residual foci, the vectors were Anopheles m. maculi-
pennis, A. m. sacharovi, A. superpictus, and A. pulcherrimus. New foci
almost always appeared only where residual foci remained or in adjacent
regions, or in areas associated through population migration. Only five
populated centers had local cases of three-day malaria following return
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USSR

DUKHANINA, N. N., et al, V sb. Materialy Nauchn. konferentsii, posvyashch. 50-letiyu In-ta med. parazitol. i tropich. med., 1970 (Proceedings of the Scientific Conference Commemorating the 50th Anniversary of the Institute of Medical Parasitology and Tropical Medicine, 1970 -- collection of works), Moscow, 1970, pp 14-16 (from RZh-36. Meditsinskaya Geografiya, No 1, Jan 71, Abstract No 1.36.129 by V. Maslovskaya)

of people from abroad; this is the only evidence that the reappearance of the disease is related to malaria brought in from abroad.

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USSR

UDC 678.06:661.183.123.3.01:53

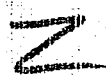
TEVLINA, A. S., AKHNAZAROVA, S. L., KHAR'KOVA, T. P., ZHUKOVA, T. B., and
KORSHAK, V. V.

"Homogeneous Anionic Membranes and Their Properties"

Moscow, Plasticheskiye Massy, No 2, 1973, pp 15-17

Abstract: A method for production of homogeneous anionic membranes is reported based on nitration of grafted copolymers [styrene + divinylbenzene + copolymer of vinylidene fluoride and hexafluoropropylene] with a mixture of nitric and sulfuric acids followed by reduction and alkylation. The results of the effect of various transformations on the electrochemical and physical-mechanical properties of the membranes are reported. These results were obtained by regression and correlational analyses. It was established that homogeneous membranes show a high chemical and thermal stability and retain their properties even in very aggressive media such as sulfuric, hydrochloric or nitric acids.

1/1

1/2 026 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--THE DIAGNOSTIC SIGNIFICANCE OF CHANGED PROTEIN CONCENTRATION IN THE
CSF IN HYDROCEPHALY OF CHILDREN -U-
AUTHOR-(02)-PURIN, V.R., ZHUKOVA, T.P. 

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL NEVROPATOLOGII I PSIKHIATRII IMENI S. S. KORSAKOVA, 1970,
VOL 70, NR 5, PP 693-698
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PEDIATRICS, INFANT DISEASE, HEAD, BLOOD CHEMISTRY, BRAIN,
BLOOD CIRCULATION, DIAGNOSTIC MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1996/0237

STEP NO--UR/0246/70/070/005/0693/0698

CIRC ACCESSION NO--AP0117489

UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0117489

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY OF THE CSF IN CONGENITAL HYDROCEPHALY OF CHILDREN AND IN EXPERIMENTAL HYDROCEPHALY OF ANIMALS IN EARLY AGE DEPICTED A CHARACTERISTICAL SIGN OF AN ACTIVE PROCESS: AN INCREASE IN THE CONCENTRATION OF PROTEIN SUBSTANCES IN THE CSF. THE AUTHORS BELIEVE THAT THESE SYMPTOMS ARE RELATED TO A DISTURBANCE OF CEREBRAL CIRCULATION IN CONDITIONS OF STABLE INTRACRANIAL HYPERTENSION AND WITH THE OUTFLOW INTO THE CSF OF PRODUCTS OF NERVOUS TISSUE DESTRUCTION. IN THE TERMINAL STAGES OF OCCLUSIONAL HYDROCEPHALY THERE WAS A REGULAR APPEARANCE OF BLOOD IN THE CSF. IN RECOVERY FROM SUCH STATES THE PROTEIN CONCENTRATION IN THE CSF GRADUALLY ATTAINED THE NORMAL FIGURES. FACILITY: INSTITUT PEDIATRII AMN SSSR, MOSCOW.

UNCLASSIFIED

USSR

VDOVENKO, M. I., ZHUKOVA, T. S.

"Determination of Surface Tension of Slags of Energetic Coals in the Plastic State"

Probl. Teploenerg. i Prikl. Teplofiz. [Problems of Heat Power Engineering and Applied Heat Physics -- Collection of Works], No 7, Alma-Ata, Nauka Press, 1971, pp 20-26 (Translated from Referativnyy Zhurnal, Khimiya, No 3, 1972, Abstract No 3 B1464 from the Resume).

Translation: The use of all recently used versions of the method of the lying drop allows the surface tension of slags to be determined over a broad interval of melting points. The temperature dependence of surface tension and slag density of energetic coals is determined from 1,000 to 1,800°.

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1/2 021 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--ADSORPTION OF MIXTURES OF CARBON MONOXIDE WITH OXYGEN ON GALLIUM
ARSENIDE -U-
AUTHOR-(02)-KIROYSKAYA, I.A., ZHUKOVA, V.D.
COUNTRY OF INFO--USSR
SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 155-8
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--GALLIUM ARSENIDE, CARBON MONOXIDE, GAS ADSORPTION, OXYGEN
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1993/0293 STEP NO--UR/0076/70/044/001/0155/0158
CIRC ACCESSION NO--AP0113223
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0113223

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ISOBARS AND KINETICS OF ADSORPTION OF A MIXT. OF CO AND O SUB2 WERE INVESTIGATED ON POWD. GAAS AT MINUS 180 TO 300DEGREES. ELEC. COND. OF THE ADSORBENT IN VACUUM AND IN (CO) IS TO (O SUB2) EQUAL 5.53 IS TO 1 WAS DETD. THE ACTIVATION ENERGY AND ADSORPTION HEATS WERE CALCD. BY DIFFERENT METHODS. FOR EXPLANATION OF THE DATA, 3 PROCESSES WERE SUGGESTED: (1) COMBINED ADSORPTION OF CO AND O SUB2; (2) THE REACTION: CO PLUS ONE-HALF O SUB2 EQUAL CO SUB2; AND (3) ADSORPTION OF CO SUB2. TEMP. CHANGES STRONGLY AFFECT EACH OF THE PROCESSES. FACILITY: TOMSK. GOS. UNIV. IM. KUIBYSHEVA, TOMSK, USSR.

UNCLASSIFIED

I/2 034 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--HALL EFFECT IN TERNARY ORDERED ALLOYS NI SUB3, MN, FE, AND NI SUB3,
MN, CO -U-
AUTHOR--(02)-ZHUKOVA, V.M., FADIN, V.P.
COUNTRY OF INFO--USSR 2
SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(3), 21-9
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ORDERED ALLOY, SOLID SOLUTION, NICKEL ALLOY, MANGANESE ALLOY,
IRON ALLOY, HALL CONSTANT, INTERMETALLIC COMPOUND, COBALT ALLOY, FERMI
SURFACE, HALL EFFECT, PHONON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3005/0849 STEP NO--UR/0139/70/013/003/0021/0029
CIRC ACCESSION NO--AT0132939
UNCLASSIFIED

2/2 034

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--ATO132939

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE NORMAL (R_{SUB0}) AND ANOMALOUS (R_{SUB8}) HALL CONSTS. AND THE SP. RESISTANCE WERE MEASURED FOR DISORDERED ALLOYS OF THE QUASIBINARY CROSS SECTIONS NI SUB3 MN-NI SUB3 FE AND NI SUB3 MN-NI SUB3 CO. IN NI SUB3 MN AND IN THE TERNARY ALLOYS WITH LOW FE AND CO CONCNS., THE HOLE PORTION OF THE FERMI SURFACE MAKES A LARGE CONTRIBUTION TO THE VALUE OF R_{SUB0} . THE MAIN MECHANISM IN THE SCATTERING OF THE CARRIERS FOR THE ANOMALOUS HALL CURRENT FOR THE ALLOYS CONTG. FE AT ROOM TEMP. IS SCATTERING ON PHONONS. AN ANAL. OF THE CONC. DEPENDENCE OF R_{SUB0} FOR THE ALLOYS OF THE NI SUB3 MN-NI SUB3 FE CROSS SECTION SHOWS THAT THESE ALLOYS ARE CHARACTERIZED BY A CLOSED FERMI SURFACE. THE RESULTS CAN BE PUGH, 1955). THE NATURE OF THE CONC. DEPENDENCE OF R_{SUB0} FOR THE ALLOYS OF THE NI SUB3 MN-NI SUB3 FE CROSS SECTION AGREES WITH THE RESULTS OBTAINED EARLIER (J. YAMASHITA, ET AL., 1966) AND INDICATES THE APPLICABILITY OF THE RIGID 3D BAND MODEL TO THESE ALLOYS. FACILITY: TOMSK, GOSUNIV., TOMSK, USSR.

UNCLASSIFIED

USSR

UDC 669.017:537

ZHUKOVA, V. M., FADIN, V. P.

"Investigation of the Hall Effect in Ternary Ordered $\text{Ni}_3(\text{Mn, Fe})$ and $\text{Ni}_3(\text{Mn, Co})$ Alloys. II. Ordered Solid Solutions"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy; Fizika, No 5, 1970, pp 99-105

Abstract: An experimental study was made of the changes of the normal Hall constant R_0 and the anomalous Hall constant R_s ; the internal saturation induction B_s ; the specific resistance ρ in the ordering of alloys of quasibinary profiles $\text{Ni}_3\text{Mn-Ni}_3\text{Fe}$ and $\text{Ni}_3\text{Mn-Ni}_3\text{Co}$; and the concentration relationships R_0 , R_s , ρ , and B_s of the indicated alloys in an ordered state. On the basis of an analysis of the experimental results, conclusions are drawn that the decrease of R_0 and ρ in ordering of the alloy Ni_3Mn and in alloying of the ordered alloy Ni_3Mn with small (~ 5 atomic %) quantities of iron is brought about essentially by a decrease in the contribution of holes to the transfer phenomena and a decrease in the density of the states in the 3d-bands of the indicated alloys in the vicinity of the Fermi level. The experimental data are in satisfactory agreement with the character of the density curve of 3d states that had been computed in a cited reference for ordered Ni_3Mn and Ni_3Fe alloys.

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USSR

UDC 621.383.44

MARCHENKO, A. I., FEDORUS, G. A., ZHUKOVA, V. N.

"Some Properties of Photoconverters Based on Pressed Caked CdS Tablets"

Kiev, Poluprovodnikovaya tekhnika i mikroelektronika, No 6, 1971, pp 101-107

Abstract: The results of studying a number of photoelectric and electrical properties of photoconverters based on pressed caked CdS tables are described. The possibility of obtaining effective photoconverters on the basis of such tablets was demonstrated previously [St. Kynev, et al., Acta Phys., Pol., No 25, 313, 1964; A. I. Marchenko, UFZh, No 12, 1392, 1967]. A procedure for manufacturing the tablets is also described. The photoconverters have high sensitivity in the entire visible range of the spectrum. The efficiency of converting the energy of solar radiation to electric energy is 3.5 percent. The sensitivity of the photoconverters in the long wave range of the spectrum is basically determined by the extrinsic absorption of light in CdS. The volt-ampere and volt-capacitive characteristics of the $p\text{-Cu}_{2-x}\text{S-n-CdS}$ heterojunction were investigated in a broad temperature range. The return branches of the volt-ampere characteristics do not reveal the current saturation section. The volt-ampere curves are characterized by "soft" breakdown usually observed in heterojunctions and the presence of excess currents appreciably exceeding the calculated values with respect to magnitude for materials with a CdS width of $1/2$

USSR

MARCHENKO, A. I., et al., Poluprovodnikovaya tekhnika i mikroelektronika, No 6, 1971, pp 101-107

the forbidden zone. The magnitude of the critical voltage corresponding to the direct current increases with a drop in temperature. The negative temperature coefficient of the critical voltages is characteristic of Zener tunneling. Thus, the tunnel mechanism of passage of the current through the junction is indicated.

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USSR

UDC 621.383.44

MARCHENKO, A. I., FEDORUS, G. A., and ZHUKOVA, V. N.

"Some Characteristics of Photoconverters Using Pressed Sintered Tablets of CdS"

Kiev, Poluprovodnikovaya tekhnika i mikroelektronika, No. 6, 1971, pp 101-107

Abstract: This article is the latest of a series of four dealing with photoconverters and published by the same authors. The first three demonstrated the possibility of fabricating photoelectric converters from sintered tablets of cadmium sulphide and selenide; the present article gives the results of investigations of the photoelectric and electrical characteristics of the CdS converters. The method for preparing the converters, from the initial material of the ETC 021009 TU brand to the final product, is described. The spectral characteristics of the converters are discussed, and a curve of the spectral short-circuit current distribution for two types of converter is plotted; the volt-ampere and volt-capacitance static characteristics of the heterojunction $p\text{-Cu}_{2-x}\text{S--n-CdS}$ are investigated in a broad range of temperatures.

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USSR

UDC 632.95

VORONKINA, T. V., ZHUKOVA, Ye. V.

"Quantitative Determination of DETA in Concentrates, Alcohol Solution, and Aerosol Cylinders by Dry Titration"

Sb. nauch. tr. Mosk. NII vaktsin i syvorotok (Transactions of the Moscow Institute of Vaccines and Sera), 1972, No 22, pp 222-224 (from RZh-Khimiya, No 18 (II), Sep 73, Abstract No 18 N438 by S. G. Zhemchuzhin)

Translation: A method is suggested for determining the content of the repellent diethylamide of m-toluic acid in concentrates, alcohol solutions, and aerosol cylinders by dry titration. Some 200 to 300 mg of a sample of the compound or 10 to 25 mg of a concentrate are dissolved in 10 to 15 ml of Ac_2O and titrated potentiometrically with 0.1 N HCIO_4 solution (prepared from 72% acid) in absolute dioxane in an LPU-01 apparatus with glass and calomel electrodes. The analytical error is 1.5 to 2%.

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USSR

UDC 666.764.32.041.9

ANTONOV, S. A., PETAK, N. V., and ZHUKOVA, Z. D., Ukrainian Scientific Research Institute of Refractory Materials

"Sintering of a Mullite-Corundum Briquette in Oxidizing and Reducing Media"

Moscow, Ogneupory, No 3, 1973, pp 24-27

Abstract: Investigation results are presented of the sintering of a mullite-corundum briquette in oxidizing and reducing media. Crude technical GA85 alumina and PLKO kaolin were used as initial materials for specimens 20 mm in diameter and 24 mm high, subjected to heat treatment with 2 hrs aging at 200-1700°C at 100-200°C intervals. The weight loss, change in volume, water absorption, and compressive strength, determined after each experiment in both media, are discussed. An intensive sintering was found to proceed in the 1400-1600°C temperature interval. The sintering rate at 1200-1400°C is higher in a reducing medium than in an oxidizing medium, due to the formation of a significant amount of liquid phase. At temperatures higher than 1400°C, the SiO₂ reduction process increases and volatile silicon monoxide develops, which prevents a sintering of the briquette. Five figures, one table, four bibliographic references.

1/1

1/2 029 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--ADSORPTION OF METAL VAPORS ON SOLID COPPER -U-

AUTHOR-(03)-ALSHEVSKIY, V.S., GRIGORYEV, G.A., ZHUKHOVITSKIY, A.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, METAL. 1970, (1), 234-8

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--METAL VAPOR, COPPER, CREEP, LEAD, BISMUTH, THALLIUM, SURFACE
TENSION, ADSORPTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1996/1811

STEP NO--UR/0370/70/000/001/0234/0238

CIRC ACCESSION NO--AP0118775

UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118775

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE ZERO CREEP METHOD WAS USED TO MEASURE THE SURFACE TENSION OF SOLID COPPER WITH DIFFERENT PARTIAL VAPOR PRESSURES OF PB, BI, AND TL. THE ADSORPTION OF THESE VAPORS ON THE SURFACE OF SOLID COPPER WAS CALCD.; THE ADSORPTION ISOTHERMS FIT THE BET EQUATION FOR POLYMOL. ABSORPTION. CONSTS. WERE CALCD. AND ADSORPTION HEATS WERE EVALUATED AND ARE CLOSE TO THE CONDENSATION HEATS OF VAPORS OF THE CORRESPONDING ELEMENTS.

UNCLASSIFIED

1/2 038 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--SPECTRUM OF CONVECTIVE INSTABILITY IN A VERTICAL CHANNEL WITH
POROUS BOUNDARIES -U-
AUTHOR-(03)-GERSHUPI, G.Z., ZHUKHOVITSKIY, YE.M., SHVARTSBLAT, D.L.
COUNTRY OF INFO--USSR
SOURCE--PRIKLADNAIA MATEMATIKA I MEKHANIKA, VOL. 34, JAN.-FEB. 1970, P.
150-152
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--FLOW STABILITY, THERMAL CONVECTION, POROSITY, FLUID FLOW,
NUMERIC SOLUTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1988/1446

STEP NO--UR/0040/70/034/000/0150/0152

CIRC ACCESSION NO--AP0106202

UNCLASSIFIED

2/2 038

UNCLASSIFIED

PROCESSING DATE—30OCT70

CIRC ACCESSION NO—AP0106202

ABSTRACT/EXTRACT—(U) GP-0- ABSTRACT. RESULTS OF A NUMERICAL STUDY OF THE SPECTRA OF NONSTATIONARY CONVECTIVE DISTURBANCES IN A FLUID WHICH IS HEATED FROM BELOW AND CONTAINED IN A PLANE VERTICAL CHANNEL WITH POROUS WALLS. PREVIOUS STUDIES SHOWED THAT THE CHARACTERISTIC RAYLEIGH NUMBERS GOVERNING THE LIMITS OF STABILITY WITH RESPECT TO STATIONARY DISTURBANCES DEPEND ON THE VELOCITY OF TRANSVERSE FLUID MOTION; INCREASED PECLET NUMBERS ARE ACCOMPANIED BY A LOCKING OF NEIGHBORING LEVELS OF THE INSTABILITY SPECTRUM. IT WAS HYPOTHEZIZED THAT THIS BLENDING OF THE LEVELS OF STATIONARY MOTIONS IS ACCOMPANIED BY THE ONSET OF OSCILLATORY CONVECTIVE MOTIONS. THE PRESENT RESULTS CONFIRM THAT HIGHER PECLET NUMBERS RESULT IN A CONVECTIVE MOTION OF THE STATIONARY OSCILLATION TYPE. DEPENDING ON THE PECLET NUMBER, THE FUNDAMENTAL STATE (TRANSVERSE FLUID MOTION) IS UNSTABLE WITH RESPECT TO EITHER MONOTONIC OR OSCILLATING DISTURBANCES. ANALYSIS OF THE SPECTRA DEFINES THE BOUNDARIES OF BOTH TYPES OF INSTABILITIES.

UNCLASSIFIED

USSR

GERSHUNI, G. Z., ZHUKHOVITSKIY, YE. M., YURKOV, YU. S.

"Concerning Convective Stability in the Presence of a Periodically Changing Parameter"

Prikladnaya Matematika i Mekhanika, Vol 34, No 3, 1970, pp 470-480

Abstract: Convective stability is parametrically affected primarily in two ways: modulation of the equilibrium temperature gradient and modulation of the field of external forces. Modulation of the temperature gradient can be effected by means of periodic change, with time, of the temperature at the boundaries of a cavity containing a fluid. Modulation of the field of external forces (the gravity field) originates in the presence of vertical vibrations of the fluid. These mechanisms of parametric action generally differ. By virtue of the temperature skin effect, periodic change of the temperature at the boundaries of the cavity with time brings about modulation of mass (convective) force only in a certain layer, the thickness of which decreases as the frequency increases. In the case of vertical vibrations of a cavity filled with fluid, on the

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GERSHUNI, G. Z., et al, Prikladnaya Matematika i Mekhanika, Vol 34, No 3, 1970, pp 470-480

other hand, modulation of the convective force is effected (in an incompressible fluid) uniformly throughout the entire volume. This distinction vanishes at comparatively low frequencies, when the thickness of the thermal skin effect is sufficiently large in comparison to the characteristic linear dimension of the cavity. In this limit case the two methods of parametric action are essentially equivalent. The present work continues an investigation published earlier, dealing with the stability of a flat horizontal layer of liquid with free boundaries, with periodic modulation of the vertical temperature gradient, special attention being directed to the low-frequency range, when the temperature skin effect may be disregarded. The present article deals with the effect of parametric action (modulation of the vertical temperature gradient or the gravity field) upon the stability of equilibrium in a flat horizontal layer with free and solid boundaries as well as in a vertical circular cylinder. By means of the Kantorovich method the equation system for perturbations is reduced to a system of conventional equations for time-dependent amplitude equations. Periodic solutions of these equations for the case of sinu-

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GERSHUNI, G. Z., et al, Prikladnaya Matematika i Mekhanika, Vol 34,
No 3, 1970, pp 470-480

soidal modulation were obtained on a digital electronic computer
by the Runge-Kutta method. The stability boundaries are determined
in relation to the modulation parameters. The limiting case of high
frequencies is discussed.

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USSR

UDC 621.375.82

SMOL'SKAYA, T. I., ZHUKOVSKAYA, A. I., and RUBINOV, A. N.

"Effect of Natural Impurities On the Oscillation Characteristics of a Standard 6Zh Rhodamine Solution"

Minsk, Zhurnal Prikladnoy Spektroskopii, vol 17, No 5, 1972, pp 775-780

Abstract: The research described in this paper is aimed at clarifying the effect of the chemical purity in dye solutions on their oscillation efficiency and setting up experimental criteria for the content of harmful impurities in the solutions. In the authors' opinion little work has been done on chemical purity requirements of such solutions. Their experiments in the comparative measurements of the threshold, energy, and duration of the oscillations showed that solutions prepared from ethyl alcohol of the same brand may differ widely in their energy parameters, and that distillation of the alcohol was not always sufficient to restore fully the oscillation capability of the solution. The results of the measurements conducted by the author are given in the form of curves -- oscillation energy of the standard 6Zh rhodamine

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SMOL'SKAYA, T. I., et al, Zhurnal Prikladnoy Spektroskopii, vol 17, No 5, 1972, pp 775-780

solution as a function of water content and fluorescent output quanta, absorption and luminescent spectra of 6Zh fractions -- together with a table of the characteristics of the various fractions. The authors express their appreciation to B. N. Kas'kov for his assistance with the luminescence measurements.

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USSR

UDC 621.385.832

ZHUKOVSKAYA, E. I., POPOV, A. N.

"Electron-Beam Tube With High Resolving Power"

Moscow, Tekhnika kino i televideniya, No. 6, 1971, pp 50-51

Abstract: This article is a description of the 18LK19L cathode-ray tube with high resolving power and screen brightness, which has recently gone into assembly-line production on a small scale. The tube may be used in scanning-beam systems. It has magnetic focusing and electric-field deflection, and a glass bulb with a flat screen 167 mm in diameter, the tube neck measuring 36 mm in diameter. The beam deflection angle is 40° . The maximum overall length of the tube is 560 mm. A photograph of the tube is given with its technical specifications and some characteristic curves. A novel feature is the small-structured screen of the "L" type with an yttrium silicate luminophore activated by cerium; it is highly stable under electron irradiation and is about twice as bright as the A-1 luminophore formerly used. The tube in general has high mechanical stability and is atmospherically and climatically durable.

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1/2 010 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--AUTOMATIC CONTROL AND REGULATION OF PH DURING THE PRELIMINARY
TREATMENT OF ANTIBIOTIC CULTURE LIQUIDS -U-
AUTHOR--(04)-RUBAN, YE.A., RUSIN, V.N., ZHUKOVSKAYA, S.A., LINKOV, G.I.
COUNTRY OF INFO--USSR
SOURCE--KHIM.--FARM. ZH. 1970, 4(1), 54-7
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--ANTIBIOTIC, HYDROGEN ION CONCENTRATION, FILTRATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1993/0324 STEP NO--UR/0450/70/004/001/0054/0057
CIRC ACCESSION NO--AP0113250
UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--16OCT70
CIRC ACCESSION NO--AP0113250
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AUTOMATIC CONTROL OF THE PH OF
MEDIA USED TO PRODUCE ANTIBIOTICS ALLOWS REMOVAL OF IMPURITIES AND
FACILITATES FILTRATION. A DEVICE IS DESCRIBED FOR THE AUTOMATIC CONTROL
OF PH TO WITHIN 1.8-2.5 UNITS USING 45PERCENT H SUB2 SO SUB4, 30PERCENT
NAOH, AND DRIED CACL SUB2. FACILITY: VSES. NAUCH.-ISSLED. INST.
ANTIBIOT., MOSCOW, USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--COAGULATION AND PRIMARY PURIFICATION OF FERMENTATION BROTHS IN
PRODUCTION OF CYCLOSERIN -U-
AUTHOR--ZHUKOVSKAYA, S.A.
COUNTRY OF INFO--USSR
SOURCE--ANTIBIOTIKI, 1970, VOL 15, NR 6, PP 509-514
DATE PUBLISHED--70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--FERMENTATION, FILTRATION, ANTIBIOTIC/(U)CYCLOSERIN ANTIBIOTIC
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/1868 STEP NO--UR/0297/70/015/006/0509/0514
CIRC ACCESSION NO--AP0125479
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125479

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD FOR COAGULATION OF CYCLOSERIN FERMENTATION, BROTHS WITH THE USE OF FILLING MATERIALS AT ALKALINE PH IS DESCRIBED. IT SECURED THE ANTIBIOTIC STABILITY DURING THE TREATMENT AND FILTRATION, INCREASED FILTRATION RATES AND PROVIDED HIGHER YIELDS IN COMPARISON TO ACID COAGULATION. THE COMPOSITION OF THE INITIAL NUTRIENT MEDIUM HAD A SIGNIFICANT EFFECT ON THE FILTRATION CHARACTERISTICS OF THE FERMENTATION BROTH: INCREASED LEVELS OF CALCIUM IN THE MEDIUM FAVOURED FILTRATION AND PROVIDED THE USE OF SMALLER AMOUNTS OF LIME FOR COAGULATION. THE METHOD ALSO SECURED MORE EFFICIENT PURIFICATION OF THE FERMENTATION BROTH FILTRATES FROM IONS OF CALCIUM, MAGNESIUM AND FERRUM. FACILITY: ALL UNION INSTITUTE FOR ANTIBIOTICS, MOSCOW.

UNCLASSIFIED

172 032 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--HUMAN EEG DYNAMICS DURING HEART OPERATIONS -U-
AUTHOR--(U2)--PETUSHKOV, YE.P., ZHUKOVSKAYA, V.G.
COUNTRY OF INFO--USSR
SOURCE--FIZIOLOGICHESKIY ZHURNAL SSSR IMENI I. M. SECHNOVA, 1970, VOL 56,
NR 5, PP 681-680.
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--HEART SURGERY, ELECTROENCEPHALOGRAPHY, HYPOTHERMIA, ARTIFICIAL
BLOOD CIRCULATION, ORGAN TRANSPLANT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/1174 STEP NO--UR/0239/70/056/005/0681/0680
CIRC ACCESSION NO--AP0126776
UNCLASSIFIED

2/2 032

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0126776

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CHANGES WERE OBSERVED IN THE EEG RECORDED DURING RECONSTRUCTIVE HEART OPERATIONS WITH ARTIFICIAL HYPOTHERMY AND ARTIFICIAL CIRCULATION APPLIED. SOME DATA ON THE EEG CHANGES DURING HEART TRANSPLANTATION IN MAN WERE ALSO GATHERED. IMPORTANCE OF THE EEG RECORDING IN A MODERN OPERATING THEATER AND SIGNIFICANCE OF SOME EEG PHENOMENA FOR CERTAIN STAGES OF A HEART OPERATION, WERE EMPHASIZED. EEG RECORDING DURING HEART TRANSPLANTATION IN MAN WAS CONSIDERED TO BE A NECESSARY AND PROGRESSIVE METHOD. SOME EEG EPOCHS AND RESULTS OF MATHEMATICAL EEG DATA PROCESSING WERE DEMONSTRATED. FACILITY: INSTITUTE FOR EXPERIMENTAL MEDICINE ACAD. MED. SCI. USSR, N. I. KALININ'S POLYTECHNICAL INSTITUTE, LENINGRAD.

UNCLASSIFIED

USSR

ZHUKOVSKAYA, V. N.

"Program for Calculating First and Second Derivatives for Tabularly Fixed Function"

Tr. Vses. N.-i. i Eksperim.-konstrukt. In-ta Prodoval'stv. Mashinostr. [Work of All-Union Scientific Research and Experimental Design Institute for Food Machinery], No 26, 1971, pp 93-97, (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V710).

NO ABSTRACT.

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USSR

ZHUKOVSKAYA, V. N.

"Program for Calculating Feier Integral and Series"

Tr. Vses. N.-i. i Eksperim.-konstrukt. In-ta Prodovol'stv. Mashinostr.
[Work of All-Union Scientific Research and Experimental Design Institute
for Food Machinery], No 26, 1971, pp 98-107, (Translated from Referativnyy
Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V709).

NO ABSTRACT.

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USSR

ZAVILEVICH, M. L., SHTEFAN, Yu. M., ~~ZHIKOVSKAYA, V. N.~~

"System of Standard Programs for the "Razdan-2" Computer"

Tr. Vses. N.-i i Eksperim.-konstrukt. In-ta Prodovol'stv. Mashinostr [Works of All-Union Scientific Research and Experimental-Design Institute for Food Machine Building], No 26, 1971, pp 117-151, (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V697).

NO ABSTRACT.

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USSR

Amplifiers

UDC: 621.382.323:6 21.375.421

PONOMAREV, V. S. and ZHUKOVSKIY, A. N.

"Using Field-Effect Transistors in Spectrometric Amplifiers"

Moscow, Pribery i Tekhnika Eksperimenta, No. 3, 1971, pp 111-114

Abstract: The purpose of this paper is to generalize the results obtained in the research into the application of Soviet field-effect transistors in low-noise spectrometric amplifiers. This research involved transistor characteristics in the 77-3000 K temperature range. The transistors tested were of the TN-1, TN-5D, and KP101G, using p-n junctions and p-type channels; also tested were triodes developed specially for spectrometric low-noise amplifiers, with n-type channels and p-n junctions. Finally, the TN-12, an MOS device with n-type channel, was tested. Curves are given of the parameters of these components and of the gate current of the transistors as a function of the temperature. Two tables of the components' characteristics, and the circuit of a preamplifier used to check the resolving power of amplifiers using the components are presented. The authors, members of the Special Design Office for X-Ray Equipment, Leningrad, thank A. A. Mitin for his assistance.

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